

Contribution ID: 500

Type: Poster

## Probing strangeness enhancement in proton-proton collisions using rapidity correlations among a $\phi$ meson and a strange hadron with ALICE

In proton-proton (pp) collisions, the ratio of strange to non-strange hadron yields is observed to increase smoothly with the multiplicity of charged particles produced in the event. In high multiplicity pp collisions, such ratios are comparable to those measured in Pb–Pb interactions at similar multiplicities. The microscopic origin of this phenomenon in pp collisions has yet to be understood. Novel observables are proposed to distinguish between the EPOS4 model, based on core-corona separation between a vacuum phase and a thermalised QGP phase with global strangeness conservation, and the PYTHIA 8.3 implementation, based on microscopic interactions between Lund strings that conserve strangeness locally. In particular, correlations between a  $\phi$  meson and (multi-)strange hadrons are shown to be excellent discriminators between the two types of models. This contribution presents the first measurement of such correlated production as a function of the event multiplicity in  $\sqrt{s} = 13.6$  TeV pp collisions collected by the ALICE Collaboration during the Run 3 of the LHC. Results are compared with predictions from the EPOS4 and PYTHIA 8.3 models with improved hadronisation mechanisms (Rope hadronisation and Close Packing), as well as with predictions from the thermal statistical model.

## Category

Experiment

## **Collaboration (if applicable)**

ALICE

Authors: COLLABORATION, ALICE; CANNITO, Stefano (Universita e INFN Trieste (IT))
Presenter: CANNITO, Stefano (Universita e INFN Trieste (IT))
Session Classification: Poster session 2

Track Classification: Collective dynamics & small systems